



# PATENT SPECIFICATION

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## COMPLETE SPECIFICATION

### Improvements in or relating to Stators for Alternating Current Machines

We, SIEMENS - SCHUCKERTWERKE AKTIENGESELLSCHAFT, a German Company, of Berlin-Siemensstadt, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention concerns improvements in or relating to stators for alternating current machines, and is particularly directed to an improved arrangement of slot conductors which can be used with particular advantage for high potential machines.

According to the invention there is provided a stator for a high potential alternating current machine, wherein a plurality of individually insulated slot conductors of equal round cross-section is arranged so that the conductors are located one behind the other relatively to the stator axis in a slot and the insulation of the individual conductors increases in thickness from the conductor located nearest the bore of the stator outwards so as to be appropriate for the different potentials occurring with respect to the low potential end of the winding.

The graduation of the insulation over the conductors of a slot saves insulation for conductors which are stressed to lower potentials and the increase in the thickness of the insulation towards the periphery of the stator ensures maximum utilisation of space. Giving the same cross-section to all the conductors simplifies and facilitates the production of the stator winding as also the replacement of damaged conductors. The round form of the conductors ensures uniform electric fields around the conductors, so that the winding is protected from the occurrence of brush discharges. Preferably each slot is narrowed between the conductors in order to be able to give the machine a suitable leakage value.

An example of stator slot conductor arrangement in accordance with the

invention is represented on the accompanying drawing which shows a portion *c* of the stator core of an alternating current generator in which a slot *n* for a group of conductors is formed. In the slot conductors *a*<sub>1</sub>, *a*<sub>2</sub>, *a*<sub>3</sub>, are located in radial alignment with respect to the axis of the stator.

All the conductors have the same round cross-section and are separately insulated. The individual insulation *i*<sub>1</sub>, *i*<sub>2</sub>, *i*<sub>3</sub>, of the conductors are increased in thickness progressively from the conductor nearest the bore *b* of the stator outwards. The slot *n* is narrowed between adjacent conductors.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A stator for a high potential alternating current machine, wherein a plurality of individually insulated slot conductors of equal round cross-section is arranged so that the conductors are located one behind the other relatively to the stator axis in a slot and the insulation of the individual conductors increases in thickness from the conductor located nearest the bore of the stator outwards so as to be appropriate for the different potentials occurring with respect to the low potential end of the winding.

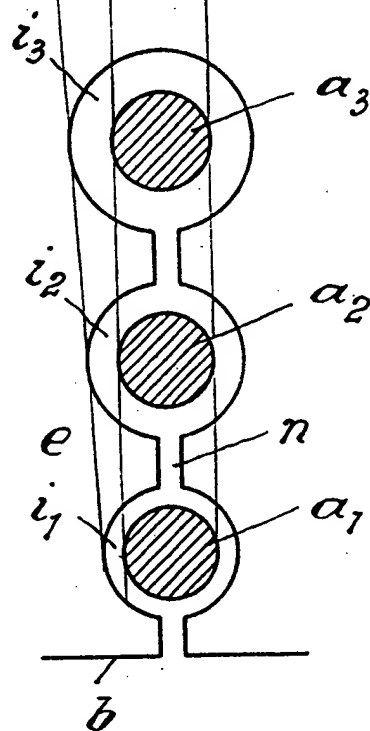
2. A stator as claimed in Claim 1, wherein the slot is narrowed between adjacent conductors.

3. Stators for high potential alternating current machines, providing with slot conductor arrangements substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 12th day of February, 1937.

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Note: Conductors all same diameter but  
 Insulation increases from inside outside i.e.  
 from air-gap to heart-of-core.



[This Drawing is a full-size reproduction of the Original.]